

## WELL DETAILS: Hilgers 33N1-22HZ

GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)		4998.00	
Northing	Easting	Latitude	Longitude
14603267.88	1645564.10	40.2101730	-104.9815630
Design: OH (Hilgers 33N1-22HZ/OH)			
Created By: Seth Burstad Date: 5-26-2017			

## PROJECT DETAILS: US Rockies Wattenberg Planning UTM83

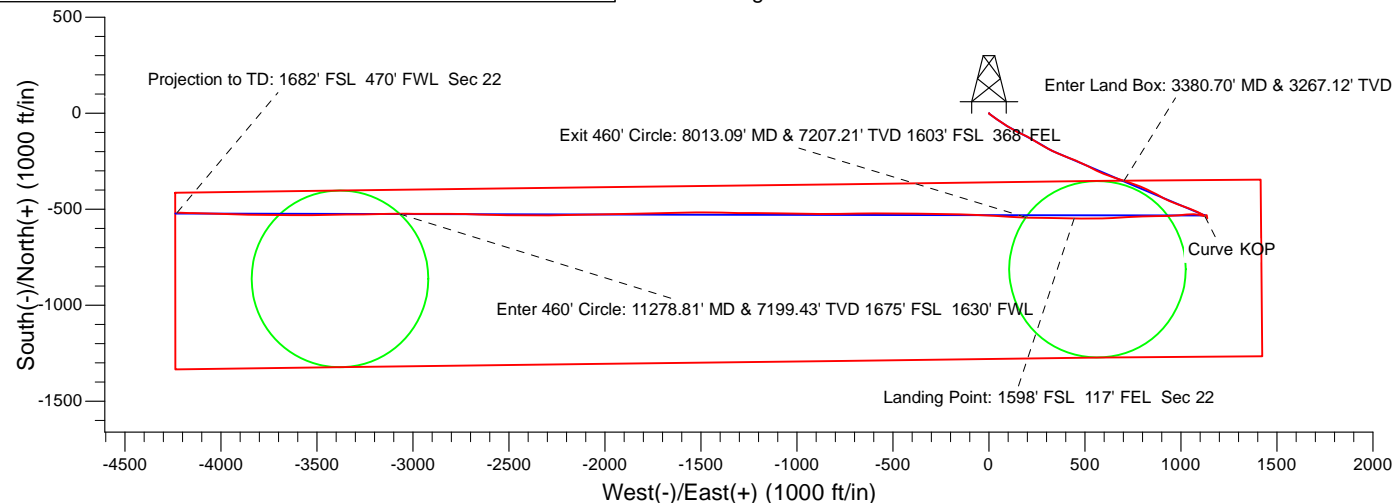
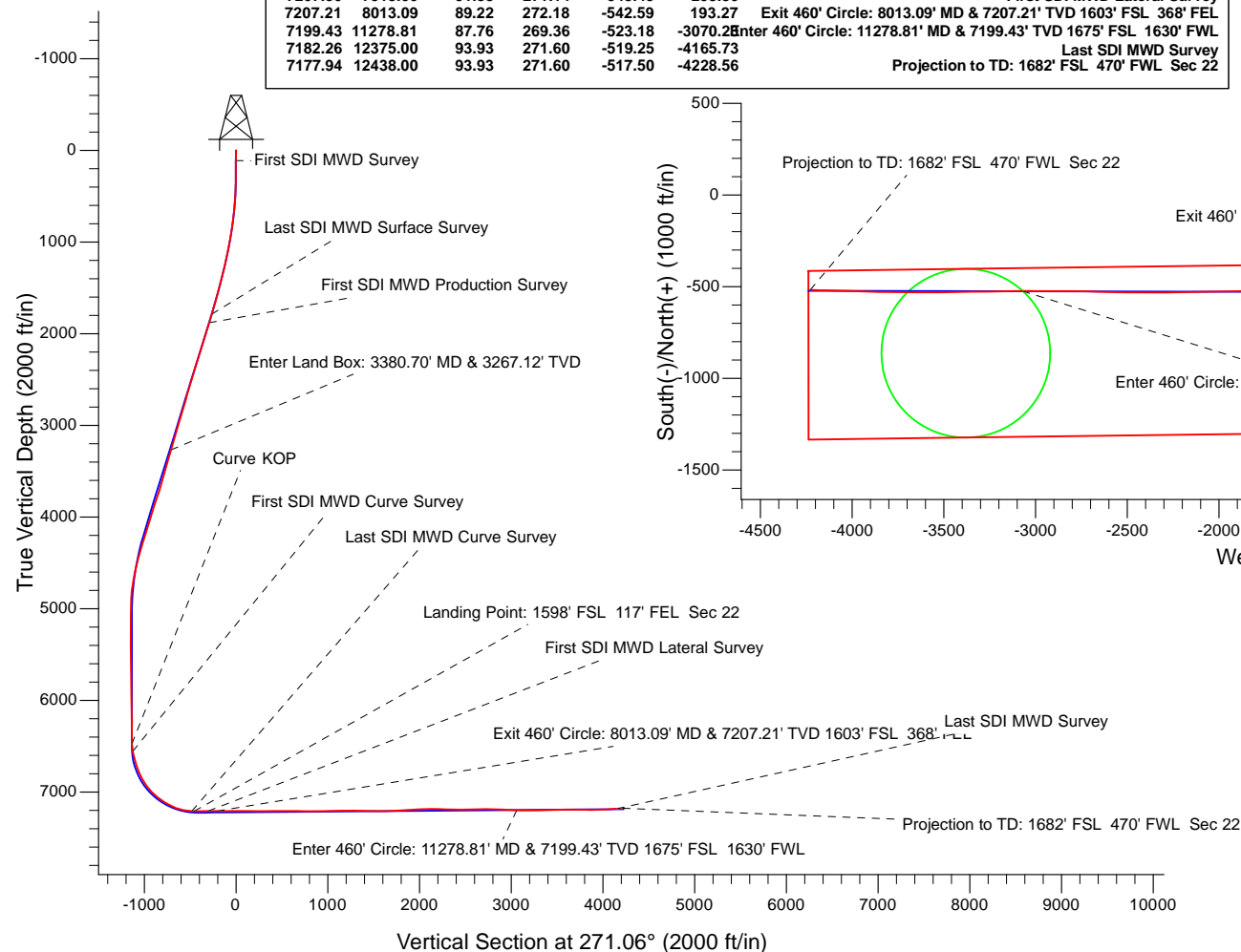
Geodetic System:	Universal Transverse Mercator (US Survey Feet)
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	Zone 13N (108 W to 102 W)
System Datum:	Mean Sea Level
Local North:	True

Surface Hole:  
 2153' FSL 559' FEL  
 Sec 22 T3N R68W

Landing Point:  
 1598' FSL 117' FEL Sec 22  
 MD: 7,762.00  
 TVD: 7,209.59  
 Lat: 40.2086706  
 Long: -104.9799718

BHL:  
 1682' FSL 470' FWL Sec 22  
 MD: 12,438.00  
 TVD: 7,177.94  
 Lat: 40.2087509  
 Long: -104.9967084

ANNOTATIONS							Annotation
TVD	MD	Inc	Azi	+N/-S	+E/-W		
114.00	114.00	0.24	126.69	-0.14	0.19		First SDI MWD Survey
1787.45	1825.00	19.51	119.69	-158.21	262.35		Last SDI MWD Surface Survey
1880.18	1923.00	18.26	120.19	-174.03	289.84		First SDI MWD Production Survey
3266.34	3380.70	16.93	106.60	-351.96	703.17	Enter Land Box: 3380.70' MD & 3267.12' TVD	Curve KOP
6475.70	6661.00	1.40	271.27	-535.49	1124.51		First SDI MWD Curve Survey
6554.08	6740.00	11.69	282.39	-533.74	1115.71		Last SDI MWD Curve Survey
7208.72	7736.00	87.54	271.45	-547.69	470.24		Landing Point: 1598' FSL 117' FEL Sec 22
7209.59	7762.00	88.65	271.06	-547.12	444.26		First SDI MWD Lateral Survey
7207.50	7913.00	91.38	271.14	-545.49	293.30	Exit 460' Circle: 8013.09' MD & 7207.21' TVD 1603' FSL 368' FEL	
7207.21	8013.09	89.22	272.18	-542.59	193.27	Enter 460' Circle: 11278.81' MD & 7199.43' TVD 1675' FSL 1630' FWL	
7199.43	11278.81	87.76	269.36	-523.18	-3070.28		Last SDI MWD Survey
7182.26	12375.00	93.93	271.60	-519.25	-4165.73		Projection to TD: 1682' FSL 470' FWL Sec 22
7177.94	12438.00	93.93	271.60	-517.50	-4228.56		





# **US ROCKIES REGION PLANNING**

**US Rockies Wattenberg Planning UTM83**

**Hilgers 9-22HZ Pad**

**Hilgers 33N1-22HZ**

**OH**

**Design: OH**

## **Standard Survey Report**

**26 May, 2017**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Hilgers 33N1-22HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Site:</b>	Hilgers 9-22HZ Pad	<b>MD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Well:</b>	Hilgers 33N1-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

<b>Project</b>	US Rockies Wattenberg Planning UTM83		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site						Hilgers 9-22HZ Pad, Site Center : Hilgers 12N-22HZ											
Site Position:			Northing:			14,603,298.11 usft			Latitude:			40.2102560					
From:			Lat/Long			Easting:			1,645,564.09 usft			Longitude:			-104.9815630		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			0.01 °		

Well	Hilgers 33N1-22HZ, 2153' FSL 559' FEL Sec 22 T3N R68W					
Well Position	+N/-S	0.00 ft	Northing:	14,603,267.88 usft	Latitude:	40.2101730
	+E/-W	0.00 ft	Easting:	1,645,564.10 usft	Longitude:	-104.9815630
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,998.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	4/28/2017	8.49	66.69	52,278

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00		271.06

<b>Survey Program</b>	<b>Date</b>	5/26/2017			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
114.00	1,825.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,923.00	12,438.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
114.00	0.24	126.69	114.00	-0.14	0.19	-0.19	0.21	0.21	0.00	
<b>First SDI MWD Survey</b>										
166.00	0.28	152.62	166.00	-0.32	0.34	-0.34	0.24	0.08	49.87	
271.00	0.71	152.13	270.99	-1.12	0.76	-0.78	0.41	0.41	-0.47	
358.00	2.26	128.92	357.96	-2.68	2.35	-2.40	1.88	1.78	-26.68	
445.00	3.47	131.54	444.85	-5.50	5.65	-5.75	1.40	1.39	3.01	
533.00	5.06	127.67	532.61	-9.64	10.72	-10.89	1.84	1.81	-4.40	
622.00	5.96	123.83	621.20	-14.61	17.66	-17.93	1.09	1.01	-4.31	
711.00	7.11	125.09	709.62	-20.35	26.01	-26.38	1.30	1.29	1.42	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Hilgers 33N1-22HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Site:</b>	Hilgers 9-22HZ Pad	<b>MD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Well:</b>	Hilgers 33N1-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
800.00	8.74	124.27	797.76	-27.32	36.10	-36.60	1.84	1.83	-0.92	
888.00	10.31	125.37	884.55	-35.65	48.05	-48.70	1.80	1.78	1.25	
977.00	11.85	123.84	971.89	-45.35	62.14	-62.96	1.76	1.73	-1.72	
1,064.00	12.49	124.61	1,056.93	-55.67	77.30	-78.31	0.76	0.74	0.89	
1,148.00	13.65	121.67	1,138.75	-66.03	93.21	-94.42	1.59	1.38	-3.50	
1,237.00	14.73	119.04	1,225.04	-77.03	112.04	-113.45	1.41	1.21	-2.96	
1,326.00	15.88	117.34	1,310.88	-88.12	132.75	-134.36	1.39	1.29	-1.91	
1,414.00	15.47	117.14	1,395.61	-99.00	153.89	-155.69	0.47	-0.47	-0.23	
1,503.00	16.13	114.68	1,481.24	-109.58	175.69	-177.68	1.06	0.74	-2.76	
1,592.00	17.33	117.85	1,566.48	-120.94	198.64	-200.84	1.69	1.35	3.56	
1,676.00	17.97	120.93	1,646.53	-133.44	220.82	-223.25	1.35	0.76	3.67	
1,763.00	19.27	121.21	1,728.97	-147.78	244.61	-247.30	1.50	1.49	0.32	
1,825.00	19.51	119.69	1,787.45	-158.21	262.35	-265.24	0.90	0.39	-2.45	
Last SDI MWD Surface Survey										
1,923.00	18.26	120.19	1,880.18	-174.03	289.84	-293.01	1.29	-1.28	0.51	
First SDI MWD Production Survey										
2,011.00	17.45	117.69	1,963.94	-187.10	313.44	-316.85	1.27	-0.92	-2.84	
2,099.00	19.64	115.23	2,047.36	-199.54	338.51	-342.14	2.64	2.49	-2.80	
2,188.00	18.68	113.93	2,131.43	-211.69	365.07	-368.92	1.18	-1.08	-1.46	
2,277.00	17.53	111.80	2,216.03	-222.45	390.54	-394.59	1.49	-1.29	-2.39	
2,366.00	18.90	110.60	2,300.57	-232.50	416.48	-420.71	1.60	1.54	-1.35	
2,454.00	18.12	110.72	2,384.01	-242.36	442.62	-447.03	0.89	-0.89	0.14	
2,543.00	18.94	114.93	2,468.40	-253.34	468.66	-473.27	1.76	0.92	4.73	
2,632.00	18.71	115.72	2,552.64	-265.63	494.62	-499.45	0.39	-0.26	0.89	
2,720.00	17.82	116.26	2,636.21	-277.71	519.41	-524.46	1.03	-1.01	0.61	
2,809.00	16.05	115.98	2,721.34	-289.12	542.69	-547.94	1.99	-1.99	-0.31	
2,897.00	18.30	114.67	2,805.41	-300.22	566.18	-571.64	2.59	2.56	-1.49	
2,986.00	17.62	114.51	2,890.08	-311.64	591.14	-596.80	0.77	-0.76	-0.18	
3,075.00	18.31	111.53	2,974.74	-322.36	616.40	-622.26	1.29	0.78	-3.35	
3,163.00	16.26	110.64	3,058.76	-331.78	640.79	-646.82	2.35	-2.33	-1.01	
3,252.00	17.87	107.94	3,143.84	-340.38	665.44	-671.62	2.02	1.81	-3.03	
3,341.00	18.14	106.60	3,228.48	-348.54	691.71	-698.04	0.56	0.30	-1.51	
3,380.70	16.93	106.60	3,266.34	-351.96	703.17	-709.56	3.05	-3.05	0.01	
Enter Land Box: 3380.70' MD & 3267.12' TVD										
3,429.00	15.46	106.61	3,312.72	-355.81	716.08	-722.54	3.05	-3.05	0.01	
3,455.00	15.04	105.69	3,337.80	-357.71	722.65	-729.14	1.86	-1.62	-3.54	
3,544.00	16.08	108.90	3,423.54	-364.83	745.43	-752.05	1.52	1.17	3.61	
3,633.00	16.36	110.07	3,509.00	-373.12	768.86	-775.63	0.48	0.31	1.31	
3,720.00	17.69	114.23	3,592.19	-382.75	792.43	-799.37	2.07	1.53	4.78	
3,809.00	18.25	115.79	3,676.85	-394.36	817.31	-824.46	0.83	0.63	1.75	
3,897.00	21.22	116.66	3,759.67	-407.51	843.95	-851.35	3.39	3.38	0.99	
3,986.00	20.63	117.54	3,842.80	-421.98	872.25	-879.91	0.75	-0.66	0.99	
4,075.00	19.81	118.64	3,926.31	-436.46	899.39	-907.31	1.02	-0.92	1.24	
4,164.00	17.66	117.00	4,010.59	-449.82	924.66	-932.82	2.49	-2.42	-1.84	

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<b>Site:</b>	Hilgers 9-22HZ Pad	<b>MD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Well:</b>	Hilgers 33N1-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,253.00	18.21	111.54	4,095.28	-461.06	949.62	-957.99	1.99	0.62	-6.13
4,342.00	18.78	109.83	4,179.68	-471.02	976.03	-984.58	0.88	0.64	-1.92
4,431.00	18.34	110.78	4,264.05	-480.85	1,002.60	-1,011.33	0.60	-0.49	1.07
4,520.00	17.47	111.33	4,348.74	-490.68	1,028.14	-1,037.04	1.00	-0.98	0.62
4,609.00	15.77	111.32	4,434.02	-499.93	1,051.85	-1,060.92	1.91	-1.91	-0.01
4,698.00	13.96	112.53	4,520.04	-508.45	1,073.03	-1,082.26	2.06	-2.03	1.36
4,787.00	12.77	114.78	4,606.62	-516.68	1,091.88	-1,101.25	1.46	-1.34	2.53
4,876.00	11.61	116.15	4,693.62	-524.75	1,108.85	-1,118.37	1.34	-1.30	1.54
4,965.00	9.32	127.24	4,781.14	-533.06	1,122.63	-1,132.30	3.42	-2.57	12.46
5,054.00	5.43	139.18	4,869.39	-540.61	1,131.12	-1,140.93	4.67	-4.37	13.42
5,143.00	3.03	136.97	4,958.14	-545.52	1,135.48	-1,145.38	2.70	-2.70	-2.48
5,232.00	0.53	226.45	5,047.10	-547.52	1,136.79	-1,146.72	3.45	-2.81	100.54
5,321.00	1.56	2.92	5,136.09	-546.60	1,136.55	-1,146.47	2.22	1.16	153.34
5,409.00	2.78	353.99	5,224.02	-543.28	1,136.39	-1,146.25	1.43	1.39	-10.15
5,498.00	2.56	348.25	5,312.93	-539.19	1,135.76	-1,145.54	0.39	-0.25	-6.45
5,587.00	1.89	354.60	5,401.86	-535.78	1,135.22	-1,144.93	0.80	-0.75	7.13
5,676.00	1.43	358.14	5,490.82	-533.21	1,135.04	-1,144.71	0.53	-0.52	3.98
5,765.00	0.72	355.96	5,579.81	-531.54	1,134.97	-1,144.61	0.80	-0.80	-2.45
5,853.00	0.68	320.61	5,667.80	-530.58	1,134.60	-1,144.22	0.48	-0.05	-40.17
5,942.00	0.76	264.94	5,756.79	-530.23	1,133.67	-1,143.29	0.76	0.09	-62.55
6,031.00	0.42	270.81	5,845.79	-530.28	1,132.76	-1,142.38	0.39	-0.38	6.60
6,119.00	0.81	241.81	5,933.78	-530.57	1,131.89	-1,141.51	0.55	0.44	-32.95
6,208.00	1.33	250.74	6,022.77	-531.20	1,130.36	-1,139.99	0.61	0.58	10.03
6,297.00	1.09	233.34	6,111.75	-532.05	1,128.71	-1,138.36	0.49	-0.27	-19.55
6,385.00	1.22	232.02	6,199.73	-533.13	1,127.30	-1,136.97	0.15	0.15	-1.50
6,474.00	1.42	242.88	6,288.71	-534.21	1,125.57	-1,135.26	0.36	0.22	12.20
6,562.00	0.36	164.91	6,376.70	-534.98	1,124.67	-1,134.37	1.58	-1.20	-88.60
6,651.00	0.31	204.43	6,465.70	-535.46	1,124.64	-1,134.36	0.26	-0.06	44.40
6,661.00	1.40	271.27	6,475.70	-535.49	1,124.51	-1,134.22	13.07	10.87	668.37
<b>Curve KOP</b>									
6,740.00	11.69	282.39	6,554.08	-533.74	1,115.71	-1,125.39	13.07	13.03	14.08
<b>First SDI MWD Curve Survey</b>									
6,833.00	15.45	283.68	6,644.46	-528.79	1,094.46	-1,104.05	4.06	4.04	1.39
6,925.00	20.32	270.67	6,732.03	-525.70	1,066.55	-1,076.09	6.82	5.29	-14.14
7,018.00	25.58	263.72	6,817.65	-527.71	1,030.42	-1,040.00	6.35	5.66	-7.47
7,110.00	30.86	265.52	6,898.69	-531.73	987.12	-996.79	5.81	5.74	1.96
7,203.00	40.74	268.20	6,974.03	-534.55	932.87	-942.60	10.75	10.62	2.88
7,292.00	50.11	269.67	7,036.43	-535.67	869.56	-879.32	10.59	10.53	1.65
7,381.00	54.13	267.90	7,091.06	-537.18	799.34	-809.15	4.78	4.52	-1.99
7,470.00	62.30	266.46	7,137.90	-540.94	723.85	-733.74	9.28	9.18	-1.62
7,559.00	68.63	266.49	7,174.84	-545.92	643.08	-653.07	7.11	7.11	0.03
7,647.00	79.69	269.75	7,198.83	-548.63	558.61	-568.67	13.06	12.57	3.70
7,736.00	87.54	271.45	7,208.72	-547.69	470.24	-480.29	9.02	8.82	1.91

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<b>Well:</b>	Hilgers 33N1-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
<b>Last SDI MWD Curve Survey</b>									
7,762.00	88.65	271.06	7,209.59	-547.12	444.26	-454.31	4.52	4.27	-1.48
<b>Landing Point: 1598' FSL 117' FEL Sec 22</b>									
7,825.00	91.34	270.13	7,209.59	-546.46	381.27	-391.32	4.52	4.27	-1.48
7,913.00	91.38	271.14	7,207.50	-545.49	293.30	-303.35	1.15	0.05	1.15
<b>First SDI MWD Lateral Survey</b>									
8,002.00	89.19	272.06	7,207.06	-543.00	204.35	-214.36	2.67	-2.46	1.03
8,013.09	89.22	272.18	7,207.21	-542.59	193.27	-203.27	1.11	0.27	1.08
<b>Exit 460' Circle: 8013.09' MD &amp; 7207.21' TVD 1603' FSL 368' FEL</b>									
8,090.00	89.43	273.01	7,208.12	-539.11	116.44	-126.39	1.11	0.27	1.08
8,179.00	90.84	273.60	7,207.91	-533.98	27.59	-37.46	1.72	1.58	0.66
8,268.00	89.60	271.91	7,207.57	-529.70	-61.30	51.49	2.36	-1.39	-1.90
8,357.00	89.87	271.77	7,207.98	-526.85	-150.25	140.48	0.34	0.30	-0.16
8,446.00	89.90	271.02	7,208.16	-524.68	-239.23	229.48	0.84	0.03	-0.84
8,535.00	89.97	270.43	7,208.26	-523.55	-328.22	318.48	0.67	0.08	-0.66
8,624.00	91.04	270.64	7,207.48	-522.72	-417.21	407.47	1.23	1.20	0.24
8,713.00	90.07	270.17	7,206.61	-522.09	-506.20	496.46	1.21	-1.09	-0.53
8,802.00	90.50	269.97	7,206.17	-521.98	-595.20	585.44	0.53	0.48	-0.22
8,891.00	88.96	269.35	7,206.59	-522.51	-684.20	674.41	1.87	-1.73	-0.70
8,979.00	88.92	269.78	7,208.22	-523.18	-772.18	762.37	0.49	-0.05	0.49
9,068.00	89.50	269.94	7,209.45	-523.40	-861.17	851.34	0.68	0.65	0.18
9,157.00	90.64	270.47	7,209.34	-523.08	-950.17	940.33	1.41	1.28	0.60
9,246.00	91.31	270.69	7,207.82	-522.18	-1,039.15	1,029.31	0.79	0.75	0.25
9,335.00	92.19	271.26	7,205.10	-520.67	-1,128.09	1,118.27	1.18	0.99	0.64
9,424.00	91.31	270.07	7,202.39	-519.63	-1,217.04	1,207.22	1.66	-0.99	-1.34
9,512.00	88.42	270.74	7,202.59	-519.01	-1,305.03	1,295.21	3.37	-3.28	0.76
9,601.00	88.25	270.94	7,205.18	-517.71	-1,393.98	1,384.17	0.29	-0.19	0.22
9,690.00	88.55	270.21	7,207.66	-516.81	-1,482.94	1,473.13	0.89	0.34	-0.82
9,779.00	88.82	269.02	7,209.71	-517.41	-1,571.92	1,562.08	1.37	0.30	-1.34
9,867.00	91.31	268.99	7,209.61	-518.94	-1,659.90	1,650.01	2.83	2.83	-0.03
9,956.00	93.56	268.53	7,205.83	-520.86	-1,748.79	1,738.85	2.58	2.53	-0.52
10,045.00	94.24	268.62	7,199.77	-523.07	-1,837.55	1,827.56	0.77	0.76	0.10
10,134.00	95.08	269.19	7,192.54	-524.77	-1,926.24	1,916.21	1.14	0.94	0.64
10,222.00	92.09	268.43	7,187.04	-526.59	-2,014.04	2,003.95	3.51	-3.40	-0.86
10,311.00	90.03	269.04	7,185.39	-528.56	-2,103.00	2,092.86	2.41	-2.31	0.69
10,400.00	88.55	269.09	7,186.50	-530.01	-2,191.98	2,181.80	1.66	-1.66	0.06
10,489.00	88.11	269.58	7,189.09	-531.04	-2,280.93	2,270.72	0.74	-0.49	0.55
10,578.00	88.92	270.04	7,191.40	-531.34	-2,369.90	2,359.67	1.05	0.91	0.52
10,667.00	89.80	269.95	7,192.39	-531.34	-2,458.90	2,448.65	0.99	0.99	-0.10
10,756.00	91.31	271.69	7,191.53	-530.07	-2,547.88	2,537.63	2.59	1.70	1.96
10,845.00	91.95	271.94	7,189.00	-527.25	-2,636.80	2,626.59	0.77	0.72	0.28
10,934.00	90.74	271.36	7,186.91	-524.69	-2,725.73	2,715.56	1.51	-1.36	-0.65
11,023.00	88.59	270.19	7,187.43	-523.49	-2,814.72	2,804.55	2.75	-2.42	-1.31
11,112.00	87.10	269.88	7,190.78	-523.43	-2,903.65	2,893.47	1.71	-1.67	-0.35

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Hilgers 33N1-22HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Site:</b>	Hilgers 9-22HZ Pad	<b>MD Reference:</b>	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
<b>Well:</b>	Hilgers 33N1-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,201.00	86.64	270.54	7,195.63	-523.11	-2,992.52	2,982.33	0.90	-0.52	0.74	
11,278.81	87.76	269.36	7,199.43	-523.18	-3,070.23	3,060.03	2.10	1.44	-1.52	
<b>Enter 460' Circle: 11278.81' MD &amp; 7199.43' TVD 1675' FSL 1630' FWL</b>										
11,289.00	87.91	269.20	7,199.82	-523.31	-3,080.41	3,070.20	2.10	1.44	-1.52	
11,378.00	89.83	268.93	7,201.57	-524.76	-3,169.38	3,159.13	2.18	2.16	-0.30	
11,467.00	91.18	269.33	7,200.79	-526.11	-3,258.36	3,248.07	1.58	1.52	0.45	
11,556.00	92.39	269.21	7,198.02	-527.24	-3,347.31	3,336.98	1.37	1.36	-0.13	
11,645.00	91.95	268.71	7,194.65	-528.86	-3,436.23	3,425.86	0.75	-0.49	-0.56	
11,733.00	90.30	269.48	7,192.92	-530.25	-3,524.20	3,513.79	2.07	-1.88	0.88	
11,822.00	90.87	270.37	7,192.01	-530.36	-3,613.19	3,602.76	1.19	0.64	1.00	
11,911.00	88.99	270.38	7,192.12	-529.78	-3,702.19	3,691.75	2.11	-2.11	0.01	
12,000.00	88.86	270.43	7,193.79	-529.15	-3,791.17	3,780.73	0.16	-0.15	0.06	
12,089.00	90.67	271.77	7,194.15	-527.44	-3,880.15	3,869.73	2.53	2.03	1.51	
12,178.00	91.51	271.39	7,192.46	-524.99	-3,969.10	3,958.71	1.04	0.94	-0.43	
12,267.00	93.15	272.02	7,188.84	-522.35	-4,057.98	4,047.62	1.97	1.84	0.71	
12,356.00	93.70	271.34	7,183.53	-519.74	-4,146.78	4,136.46	0.98	0.62	-0.76	
12,375.00	93.93	271.60	7,182.26	-519.25	-4,165.73	4,155.42	1.82	1.21	1.37	
<b>Last SDI MWD Survey</b>										
12,438.00	93.93	271.60	7,177.94	-517.50	-4,228.56	4,218.26	0.00	0.00	0.00	
<b>Projection to TD: 1682' FSL 470' FWL Sec 22</b>										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
114.00	114.00	-0.14	0.19	First SDI MWD Survey	
1,825.00	1,787.45	-158.21	262.35	Last SDI MWD Surface Survey	
1,923.00	1,880.18	-174.03	289.84	First SDI MWD Production Survey	
3,380.70	3,266.34	-351.96	703.17	Enter Land Box: 3380.70' MD & 3267.12' TVD	
6,661.00	6,475.70	-535.49	1,124.51	Curve KOP	
6,740.00	6,554.08	-533.74	1,115.71	First SDI MWD Curve Survey	
7,736.00	7,208.72	-547.69	470.24	Last SDI MWD Curve Survey	
7,762.00	7,209.59	-547.12	444.26	Landing Point: 1598' FSL 117' FEL Sec 22	
7,913.00	7,207.50	-545.49	293.30	First SDI MWD Lateral Survey	
8,013.09	7,207.21	-542.59	193.27	Exit 460' Circle: 8013.09' MD & 7207.21' TVD 1603' FSL 368' FEL	
11,278.81	7,199.43	-523.18	-3,070.23	Enter 460' Circle: 11278.81' MD & 7199.43' TVD 1675' FSL 1630' FWL	
12,375.00	7,182.26	-519.25	-4,165.73	Last SDI MWD Survey	
12,438.00	7,177.94	-517.50	-4,228.56	Projection to TD: 1682' FSL 470' FWL Sec 22	

Checked By: _____	Approved By: _____	Date: _____
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